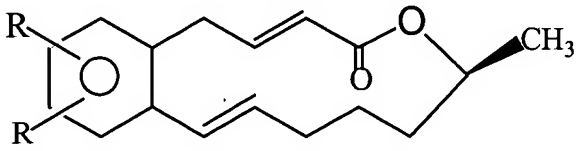
IN THE CLAIMS:

Please cancel claims 1-22, without prejudice. This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims

Claims 1-22 (Canceled).

23. (New) A compound having a formula selected from the group consisting of:



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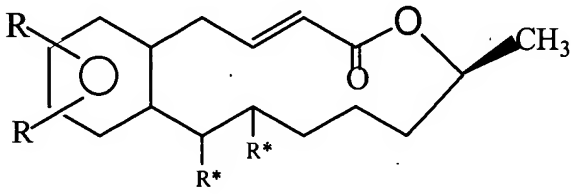
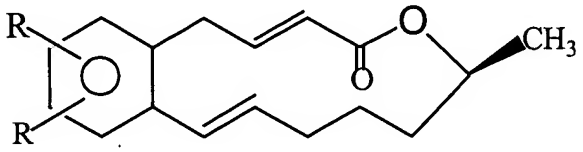


wherein each R is independently selected from -OH, -OR^1, -SH, -SR^1, -NR^2R^2, and a carbonyl oxygen; and R^* is hydrogen or –OH; and wherein R^1 is a C_1 to C_4 alkyl; and R^2 is a C_1 to C_4 alkyl.

24. (New) A method of enhancing learning in a mammal comprising administering to the mammal a compound having a formula selected from the group consisting of:



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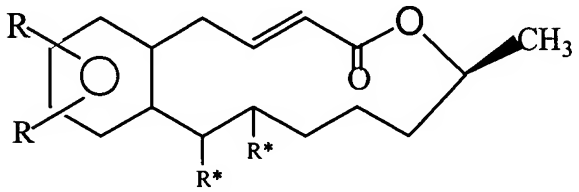


wherein each R is independently selected from -OH, -OR^1, -SH, -SR^1, -NR^2R^2, and a carbonyl oxygen; and R^* is hydrogen or –OH; and wherein R^1 is a C_1 to C_4 alkyl; and R^2 is a C_1 to C_4 alkyl.

25. (New) The method of claim 24, wherein the amount of the compound administered is from about 1.0 to 15.0 mg/kg of body weight.

26. (New) The method of claim 25, wherein the amount of the compound administered is from about 3.0 to 10.0 mg/kg of body weight.

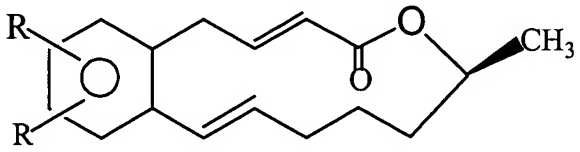
27. (New) The method of claim 24, wherein the compound is administered intraperitoneally.

28. (New) The method of claim 24, wherein the mammal has a healthy brain.

29. (New) The method of claim 24, wherein the compound is administered up to seven days before the learning.

30. (New) The method of claim 24, wherein the compound is administered up to two hours after the learning.

31. (New) A method for treating memory dysfunction in a mammal comprising administering to the peripheral circulation of said mammal a compound having a formula selected from a group consisting of:



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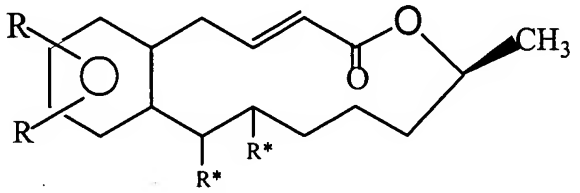


wherein each R is independently selected from -OH, -OR^1, -SH, -SR^1, -NR^2R^2, and a carbonyl oxygen; and R^* is hydrogen or –OH; and wherein R^1 is a C_1 to C_4 alkyl; and R^2 is a C_1 to C_4 alkyl.

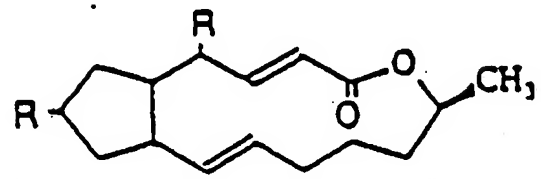
32. (New) The method of claim 31, wherein the memory dysfunction is associated with a decrease in the efficiency of synaptic transmission or loss of functioning synapses in the hippocampus.

33. (New) The method of claim 31, wherein the amount of the compound is from about 1.0 to 15.0 mg/kg of body weight.

34. (New) The method of claim 33, wherein the amount of the compound is from about 3.0 to 10.0 mg/kg of body weight.

35. (New) The method of claim 31, wherein the compound is administered intraperitoneally.

36. (New) A compound selected from the group consisting of:



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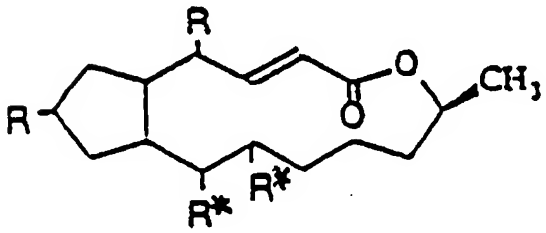
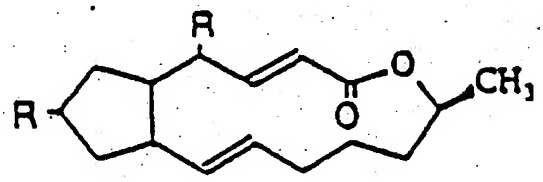


wherein each R is independently selected from -OH, -OR1, -SH, -SR1, -NR2R2, and a carbonyl oxygen; and R* is hydrogen or –OH; and wherein R1 is a C1 to C4 alkyl; and R2 is hydrogen or a C1 to C4 alkyl.

37. (New) A method of enhancing learning in a mammal comprising administering to the peripheral circulation of said mammal a compound having a formula selected from the group consisting of:



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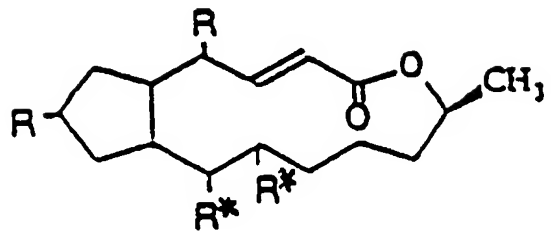


wherein each R is independently selected from -OH, -OR1, -SH, -SR1, -NR2R2, and a carbonyl oxygen; and R* is hydrogen or –OH; and wherein R1 is a C1 to C4 alkyl; and R2 is hydrogen or a C1 to C4 alkyl.

38. (New) The method of claim 37, wherein the amount of the compound administered is from about 1.0 to 15.0 mg/kg of body weight.

39. (New) The method of claim 38, wherein the amount of the compound administered is from about 3.0 to 10.0 mg/kg of body weight.

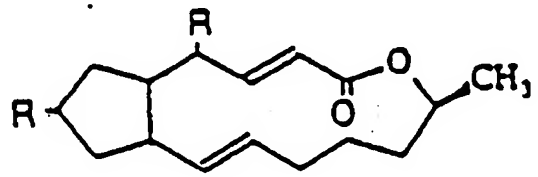
40. (New) The method of claim 37, wherein the compound is administered intraperitoneally.

41. (New) The method of claim 37, wherein the mammal has a healthy brain.

42. (New) The method of claim 37, wherein the compound is administered up to seven days before the learning.

43. (New) The method of claim 37, wherein the compound is administered up to two hours after the learning.

44. (New) A method for treating memory dysfunction in a mammal comprising administering to the peripheral circulation of said mammal a compound having a formula selected from the group consisting of:



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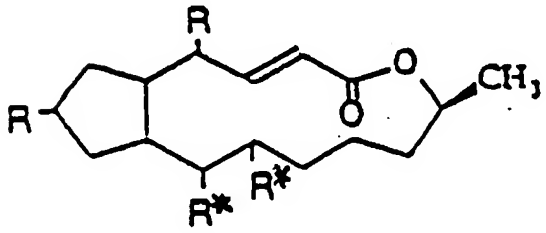


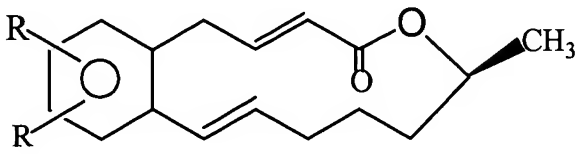
wherein each R is independently selected from -OH, -OR1, -SH, -SR1, -NR2R2, and a carbonyl oxygen; and R* is hydrogen or –OH; and wherein R1 is a C1 to C4 alkyl; and R2 is hydrogen or a C1 to C4 alkyl.

45. (New) The method of claim 44, wherein the amount of the compound administered is from about 1.0 to 15.0 mg/kg of body weight.

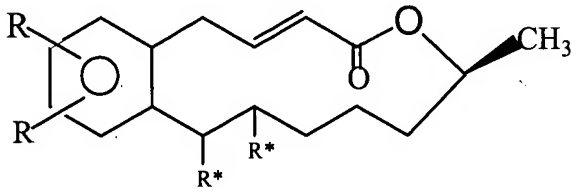
46. (New) The method of claim 45, wherein the amount of the compound administered is from about 3.0 to 10.0 mg/kg of body weight.

47. (New) The method of claim 44, wherein the compound is administered intraperitoneally.

48. (New) A pharmaceutical composition comprising a compound having a formula selected from the group consisting of:



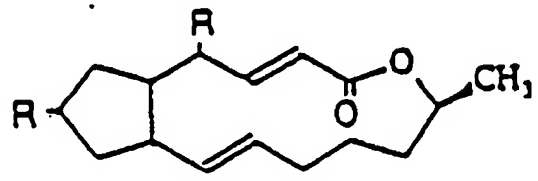
and



wherein each R is independently selected from -OH, -OR^1, -SH, -SR^1, -NR^2R^2, and a carbonyl oxygen; and R^* is hydrogen or –OH; and wherein R^1 is a C_1 to C_4 alkyl; and R^2 is a C_1 to C_4 alkyl, and a physiologically acceptable carrier.

49. (New) The pharmaceutical composition of claim 48, wherein the physiologically acceptable carrier is an aqueous or non-aqueous sterile vehicle.

50. (New) A pharmaceutical composition comprising a compound having a formula selected from the group consisting of:



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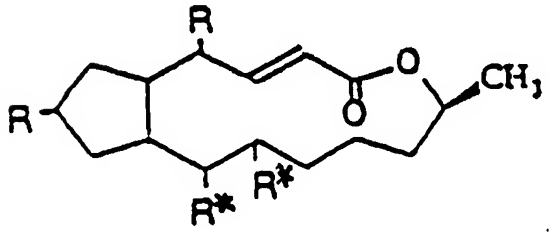

wherein each R is independently selected from -OH, -OR1, -SH, -SR1, -NR2R2, and a carbonyl oxygen; and R* is hydrogen or –OH; and wherein R1 is a C1 to C4 alkyl; and R2 is hydrogen or a C1 to C4 alkyl.

51. (New) The pharmaceutical composition of claim 50, wherein the physiologically acceptable carrier is an aqueous or non-aqueous sterile vehicle.